

Claims

1. Method for supplying at least one load (3) during mains failure, wherein a plurality of batteries (1) as an emergency voltage source supply the at least one load (3) during failure of a mains voltage source (2) and are connected to the mains voltage source (2), with the following steps:
 - a) splitting of the plurality of batteries (1) connected in series into at least two battery groups (4, 5);
 - b) connection of each of the battery groups (4, 5) to the mains voltage source (2) for charging, and
 - c) series connection of the battery groups (4, 5) for use as the emergency voltage source.
2. Method according to Claim 1,
characterised in that
the splitting of the battery groups (4, 5) and the connection of each of the battery groups (4, 5) in step a) or b) occurs by means of a single switching device (6).
3. Method according to Claim 2,
characterised in that
the switching device (6) establishes the series connection of the battery groups (4, 5) in step c) by switching over into another state.
4. Method according to Claim 3,
characterised in that
the switchover occurs automatically on the failure of the mains voltage source (2).
5. Method according to one of the previous claims,
characterised in that
a charge-voltage limiting circuit (7) limits a charge voltage on the battery groups (4, 5).
6. Method according to one of the previous claims,
characterised in that
an exhaustive discharge protective circuit (8) interrupts further discharging after the battery groups (4, 5) have discharged to a specified value.
7. Device for the supply of at least one load (3) during mains failure with a plurality of batteries (1), which can be connected to a mains voltage source (2) and are connected together in series

during mains failure for the emergency supply of the load,

characterised in that

a splitting circuit (9) is provided for splitting the batteries (1) into at least two battery groups (4, 5) and a connection circuit (10) is provided for the connection of each of the battery groups (4, 5) to the mains voltage source (2).

8. Device according to Claim 7,

characterised in that

the splitting circuit (9) and the connection circuit (10) are formed by a switching device (6).

9. Device according to Claim 7 or 8,

characterised in that

the battery groups (4, 5) are connected in parallel for charging and in series for the emergency supply by means of the switching device (6).

10. Device according to one of the previous Claims 7 to 9,

characterised in that

the switching device (6) comprises at least one relay (11).

11. Device according to one of the previous Claims 7 to 10,

characterised in that

the contacts (12, 13) of the relay (11) are arranged in the release state during mains failure, wherein in this state the battery groups (4, 5) are connected in series for the emergency supply.

12. Device according to one of the previous Claims 7 to 11,

characterised in that

a resistance for charging is assigned to each battery group (4, 5).

13. Device according to one of the previous Claims 7 to 12,

characterised in that

each battery group (4, 5) comprises the same number of batteries (1).

14. Device according to one of the previous Claims 7 to 13,

characterised in that

a charge-voltage limiting circuit (7) is connected in parallel with each of the battery groups (4, 5).

15. Device according to one of the previous Claims 7 to 14,

characterised in that

an exhaustive discharge protection circuit (8) is connected to the battery groups (4, 5).

16. Device according to one of the previous Claims 7 to 15,
characterised in that
the switching device (6) and in particular the splitting circuit (9) comprise at least a first transistor (16) as an electronic switch.
17. Device according to one of the previous Claims 7 to 16,
characterised in that
the battery groups (4, 5) are connected to the feeder lines of the mains voltage source (2) or the load (3) by means of at least a second, respectively third transistor (7, 8).
18. Device according to one of the previous Claims 7 to 17,
characterised in that
a constant current source (23, 24) is connected between the second, respectively third transistor (17, 18) and associated battery group (4, 5).
19. Device according to one of the previous Claims 7 to 18,
characterised in that
a diode device (19) for decoupling is connected between the mains voltage source (2) and the battery group (4, 5) and / or load (3).
20. Device according to Claim 19,
characterised in that
the diode device (19) comprises at least one diode (20) connected in a connecting line (21, 22) to the mains voltage source (2).